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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 09/012,679 | 01/23/98 | BHANDARI | G 2771-221 |

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HM12/0427

| EXAMINER | |
|---------------------|--------------|
| NAZARIO GONZALEZ, P | |
| ART UNIT | PAPER NUMBER |

1621

3

DATE MAILED: 04/27/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/012,679

Applicant(s)

Bhandari et al.

Examiner

Porfirio Nazario-Gonzalez

Group Art Unit

1621



☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-15 is/are pending in the application.

Of the above, claim(s) 5-15 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-4 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-4, drawn to precursors, classified in class 556, subclass 42+.
 - II. Claims 5-15, drawn to deposition methods, classified in class 427, subclass 248.1.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product could be used in a materially different process such as starting material in the MOD process rather than CVD process or as a intermediate for chemical synthesis of other tantalum or titanium compounds.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. This application contains claims directed to the following patentably distinct species of the claimed invention: The different tantalum and/or titanium compounds designated under (I)

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through (x) in claims 1 and 5 (hereinafter referred to as species (I), (ii), (iii), (iv), (v), (vi), (vii), (viii), (ix), and (x)).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, 1-15 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. During a telephone conversation between Examiner Meeks and Mr. Steven Hultquist on March 11, 1999 a provisional election was made with traverse to prosecute the invention of

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Group I, claims 1-4 and the species (iv). Affirmation of this election must be made by applicant in replying to this Office action. Claims 5-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

7. The drawings are objected to because of the reasons set forth in PTO Form 948. Correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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Applicants have disclosed and claimed compounds of the formulas (i) to (x), particularly Applicants elected the species of formula (iv). Further, Applicants have disclosed in the Figures the TGA and STA analysis, as well as the ^1H and ^{13}C NMR spectra, of $\text{Ta}(\text{NMeEt})_5$. However, the specification failed to disclose how these compounds were made. Therefore, one skilled in the art would not be able to make said compounds without a synthetic scheme which shows how the compounds were made.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The formulas (vii) and (ix) failed to define the variable "x".

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by US Pat.

No. 3,288,829 to Wilkinson. The '829 patent discloses bis(cyclopentadienyl)tantalum trihydride

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as a precursor for the vapor phase plating of a steel which reads on the compound of the formula (vi). See examples.

14. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ovchinnikov et al., *Organometallic Chemistry in the USSR*, Vol. 5, No. 5, pp. 564-567 (1992), cited by Applicants. Ovchinnikov et al. disclose the compound $(\text{SiMe}_3)_3\text{SiTi}(\text{NMe}_2)_3$ which reads on the compound (ix) when $\text{R}_{1-3} = \text{SiMe}_3$ and $\text{R}_4 \text{ and } 5 = \text{Me}$.

15. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lappert et al., *Metal and Metalloid Amides*, John Wiley & Sons, pp. 470-543, cited by Applicants. On page 471 the compound $[\text{TiNMe}_2(\text{NPr}_2)_3]$ was disclosed which reads on the compound of the formula (vii).

16. Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Shin et al., *Chem. Mater.*, Vol. 9, pp. 76-80 (1997), cited by Applicants. Shin et al. disclose the compound $\text{Ti}[\text{N}(\text{CH}_3)\text{C}_2\text{H}_5]_4$ which reads on the compounds of the formulas (vii) and (ix) when $x=0$. Note that the value of x was assumed by the Examiner since the claim failed to define a value to the variable.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat.

No. 3,288,829 to Wilkinson. The '829 patent discloses a process of making

bis(cyclopentadienyl)tantalum trihydride useful as a precursor for the vapor phase plating of a steel by reacting sodium cyclopentadienide and TaCl_5 using THF as a solvent. See examples. The claimed composition differs from the '829 patent in the solvent used. The '829 uses THF whereas the claimed composition uses as solvent alkanes, aromatics, and mixture thereof.

However, the '829 patent teaches the use of hydrocarbon solvents such as benzene, n-hexane, toluene, isooctane, etc. See column 3, lines 49-54. Further, the '829 patent discloses that Cp_2TaH_3 is soluble in benzene. See column 4, line 55. It would be obvious to one skilled in the art

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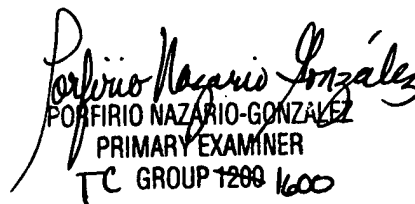
to substitute the ether solvent used in the '829 process with a hydrocarbyl solvent as taught in the '829 patent with the expectation of obtaining Cp_2TaH_3 in said hydrocarbyl solvent.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Nazario-Gonzalez whose telephone number is (703) 308-4632. The Examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Gary Geist, can be reached on (703) 308-1701. The fax phone number for this Group is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

PNG
April 20, 1999


PORFIRIO NAZARIO-GONZALEZ
PRIMARY EXAMINER
TC GROUP 1200 1600